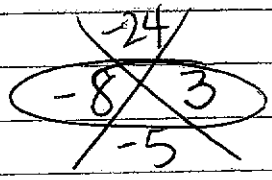
1. $x^2-5x-24$
$(x-8)(x+3)$



[C]

2. $5+3^3-8\div2$

$5+27-4$
$32-4$
28

[A]

3. $\frac{x-2}{3}=-2$ multiply by 3

$x-2=-6$ add 2
$x=-4$

[A]

4. $8z+7=7z-15$
$-7z \quad -7z$ subtract 7z
$z+7=-15$ subtract 7
$-7 \quad -7$
$z=-22$

[C]

5.

x	y
-1	-1
0	-2
1	-1
2	2

plug each x into each possibility and see if you get y.

a. $y=x^2-2$ works!

[A]

6. $y = 3x^2 - 1$ if it is on the graph... then it "works" in the equation.

$(0, -1)$ works!

[C]

7. $(4x^3)^2 = (4x^3)(4x^3) = 16x^6$

[D]

8. $5x - 8 \geq 7x$
$-7x \quad -7x$

Pretend it is an equation.

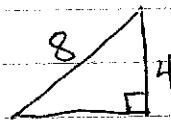
$-2x - 8 \geq 0$
$+8 \quad +8$

$\frac{-2x}{-2} \geq \frac{8}{-2}$

When you ÷ or × by a negative... flip the symbol

$x \leq -4$

[C]

9. 

$a^2 + b^2 = c^2$
$4^2 + b^2 = 8^2$
$16 + b^2 = 64$
$b^2 = 48$
$b = \sqrt{48}$ (simplify into perfect squares)
$b = \sqrt{16}\sqrt{3}$
$b = 4\sqrt{3}$

[D]

10. $3(5x-2)-3(-5+2y)$ • Distribute
$15x-6+15-6y$ • Combine like terms
$15x+9-6y$

[B]

11. $(-2,4)$ $(0,8)$ $y=mx+b$
find m
find b

Slope $-2 < \begin{matrix}(0,8)\\(-2,4)\end{matrix} > -4$

$\frac{\Delta y}{\Delta x} = \frac{-4}{-2} = 2$

Pick a point to plug into $y=mx+b$

$8 = 2(0)+b$
$8 = 0+b$
$8 = b$

Write equation $y = 2x+8$ [C]

12. p = # of inmates last year

$7+2p$ [D]

13. Amanda = $2x-8$
Chris = $2x$
Devin = x

$(2x-8)+(2x)+(x)=122$

$5x-8=122$
$5x=130$
$x=26$ (Devin)
$2x=52$ points (Chris)

[not given]

14. $y=-8x+2$
$y=6x-12$

$6x-12=-8x+2$

$14x-12=2$
$14x=14$
$x=1$

The point of intersection MEANS ... SOLVE this system. You can graph, add/subtract or substitute. I did substitution

Plug in to find y
$y=6(1)-12$
$y=6-12$
$y=-6$

$(1,-6)$ is the point of intersection.

[B]

15.

x	y
-1	-1
0	0
1	1

all of the x-values equal the y-values so $y=x$

OR ...

if I plug in each value into each equation $y=x^3$ works, too!

[E OR B]

16. $y = 2x^3 - 6x + 3$ when $x = -2$

$y = 2(-2)^3 - 6(-2) + 3$

$2 \cdot (-8) - 6(-2) + 3$

$-16 + 12 + 3$

$-4 + 3$

-1

[E] none of these

17. $V = \pi r^2 h$

$D = 7$

$h = 8$

$r = \frac{1}{2}D = 3.5$

$V = \pi (3.5)^2 \cdot 8$

$V = 98\pi \text{ ft}^3$

$V = 307.8 \text{ ft}^3$

$V = 308 \text{ ft}^3$

[B]

18. $\frac{2 \text{ cm}}{6 \text{ m}} = \frac{x \text{ cm}}{? \text{ m}}$

$2 \cdot ? = 6x$

$? = 3x$

[B]

19. $y = 3x - \frac{1}{x}$ if $x = -1$

$y = 3(-1) - \frac{1}{(-1)}$

$y = -3 + 1$

$y = -2$

[B]

$\frac{1}{-1} = -1$

$-3 - -1 =$

$-3 + 1$

20. Factor $3x^2-7x-6$

-18, -9, 2, -7

	x	-3
$3x$	$3x^2$	$-9x$
$+2$	$2x$	-6

$(3x+2)(x-3)$ [D]

21. $y = x^3+8 \quad x = -2$

$y = (-2)^3+8$

$y = -8+8$

$y = 0$ [B]

22.

Temp	Chirps
65°	5
75°	25
85°	45

$+10$ < | > $+20$

As temp rises 10° chirps rise 20

OR As temp rises 1° chirps rise 2

$\frac{10}{20} = \frac{1}{2}$ [D]